

CE 4313-001 - Traffic Engineering
Fall 2012
Room WH 208
MW 7 to 8:20 pm

Instructor:

Jim Williams
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Office Hours:

Monday & Tuesday: 2:00 to 3:30 pm, 5 to 6 pm
Wednesday & Thursday: 2:00 to 6 pm

Course Description:

Legal requirements and traffic studies for installation of traffic control devices; characteristics of signs, signals, and markings; traffic laws; design of fixed-time, actuated, and computer-controlled traffic signals; optimization of traffic flow at intersections; capacity analysis of intersections.

Pre-requisite: Grade of C or better in CE 3302

Student Learning (ABET) Outcomes:

- a: Apply knowledge of mathematics, science, and engineering. (C_E)
- c: Design a system, component, or process to meet desired needs. (T_E)
- e: Identify, formulate, and solve engineering problems. (T_I)
- f: Understanding of professional and ethical responsibility. (C_I)
- j: Knowledge of contemporary civil engineering issues. (C_E)
- k: Use the techniques, skills, and modern engineering tools necessary for engineering practice. (C_E)

C_I – This outcome is implicitly covered.

C_E – This outcome is explicitly covered.

T_I – This outcome is covered and implicitly assessed for by one or more means.

T_E – This outcome is explicitly tested for by one or more means.

Techniques, Skills, and Modern Engineering Tools Used:

Manual on Uniform Traffic Control Devices, current federal edition
Highway Capacity Manual, 2010
Highway Capacity Software

Requirements:

Study and homework preparation will be required outside scheduled class time.

Texts: Roger P. Roess, Elena S. Prassas, William R. McShane, Traffic Engineering, 4th edition, Prentice Hall, 2011.
Highway Capacity Manual, 2010 edition, Transportation Research Board, selected chapters provided on the class MavSpace site.
Texas Traffic Laws, Title 7, Vehicles and Traffic, Subtitle C. Rules of the Road, Chapters 541-600, pp. 351-475, 2011-2012 Edition, LexisNexis Publications, 2011, provided on the class MavSpace site.
Texas Manual on Uniform Traffic Control Devices, Texas Department of Transportation, 2011 edition.
http://www.txdot.gov/txdot_library/publications/tmutcd.htm
Individual parts & chapters will be placed on the class MavSpace site.
Manual on Uniform Traffic Control Devices, Federal Highway Administration, U.S. Department of Transportation, 2009 edition (December 2009).
http://mutcd.fhwa.dot.gov/pdfs/2009/pdf_index.htm
Traffic Signal Timing Manual, FHWA-HOP-08-024, Federal Highway Administration, 2008, provided on the class MavSpace site.

MavSpace site:

<http://mavspace.uta.edu/cejcwill/ce9644>

you will need your NetID and corresponding password

Tests: 2 tests

Weighted equally

Test 1 will cover topics 1-3, Test 2 will cover topic 4

Homework:

There will be approximately three homework assignments. Due dates will be noted on the assignment sheets.

Projects:

There will be two design projects, one dealing with sign design, the second with the design and evaluation of a signalized intersection. Due dates will be noted on the assignment sheets.

Final Grade:	10% - homework	90 - 100:	A
	15% - projects	80 - 89:	B
	75% - tests	70 - 79:	C
		60 - 69:	D
		- 59:	F

Attendance Policy:

Attendance is not mandatory; however, no special accommodations will be made for incomplete or missed assignments and exams due to unexcused absences.

Course Objectives:

Basic elements of traffic law and its impact on traffic operation; basic elements of the need for and design of traffic control devices (signs, signals, and markings); and the design, operation, and evaluation of signalized and unsignalized intersections, using both manual and computer methods.

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Texts: RPM: Roess, Prassas, McShane, *Traffic Engineering*, 4th edition
TTL: *Texas Traffic Laws*
MUTCD: 2011 *Texas Manual on Uniform Traffic Control Devices*
HCM: 2010 *Highway Capacity Manual*
TSTM: *Traffic Signal Timing Manual*

Course Outline	
1. Introduction	RPM, Chapter 1
2. Traffic Laws	TTL
3. Design & Use of Traffic Control Devices	RPM, Chapter 4
Introduction	MUTCD, Part 1
Signs	MUTCD, Part 2A
Signs: Regulatory	MUTCD, Part 2B
Signs: Warning	MUTCD, Part 2C
Signs: Guide	MUTCD, Parts 2D-2I
Markings	MUTCD, Part 3
Signals	MUTCD, Part 4
4. Intersection Operation	RPM, Chapters 18-20
Traffic Signals: Fixed Time	TSTM, Chapters 1-4 RPM, Chapter 21
Traffic Signals: Actuated	TSTM, Chapter 5 RPM, Chapter 22
Traffic Signals: Capacity	HCM, Chapter 18 RPM, Chapters 23 & 24
Unsignalized Intersection Capacity	HCM, Chapters 19 & 20

Drop Policy:

Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. Students will not be automatically dropped for non-attendance. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. Contact the Financial Aid Office for more information.

Americans with Disabilities Act:

The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act* (ADA). All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Academic Integrity:

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University. According to the UT System Regents' Rule 50101, §2.2, "Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts."

Student Support Services Available:

The University of Texas at Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. These resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals to resources for any reason, students may contact the Maverick Resource Hotline at 817-272-6107 or visit www.uta.edu/resources for more information.

Electronic Communication Policy:

The University of Texas at Arlington has adopted the University "MavMail" address as the sole official means of communication with students. MavMail is used to remind students of important deadlines, advertise events and activities, and permit the University to conduct official transactions exclusively by electronic means. For example, important information

concerning registration, financial aid, payment of bills, and graduation are now sent to students through the MavMail system. All students are assigned a MavMail account. Students are responsible for checking their MavMail regularly. Information about activating and using MavMail is available at <http://www.uta.edu/oit/email/>. There is no additional charge to students for using this account, and it remains active even after they graduate from UT Arlington.

To obtain your NetID or for logon assistance, visit <https://webapps.uta.edu/oit/selfservice/>. If you are unable to resolve your issue from the Self-Service website, contact the Helpdesk at helpdesk@uta.edu.

Final Review Week:

A period of five university class days prior to the first day of final examinations is designated as Final Review Week. During this week, no new assignments will be given; however, previously assigned work may have a completion date during this week. In addition, no portion of the final examination shall be administered during the Final Review Week. Classes are held as scheduled during this week and materials covered in lectures during this week may be included in the final examination.

Librarian to Contact:

Sylvia George-Williams, Science and Engineering Library (Basement, Nedderman Hall)

Grade Grievance Policy:

Grade grievances will be handled according to the policy described in the College of Engineering portion of the Catalog.